FOX RIVER

WATERSHED

INVENTORY AND ASSESSMENT

PREPARED BY

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EXECUTIVE SUMMARY

The Fox River basin is a relatively small system of streams which drains 400 square miles in northeastern Missouri and southeastern Iowa upstream of the gage station on Fox River at Wayland, Missouri. Average annual discharge at the gage station is 258 cubic feet per second. The four largest streams in the basin are Fox River (52 miles long in Missouri), Little Fox River (24 miles in Missouri), Honey Creek (36 miles), and Sugar Creek (16 miles). Stream gradients average 3.0 feet per mile on Fox River, 5.0 feet per mile on Little Fox River, 6.7 feet per mile on Honey Creek, and 13.2 feet per mile on Sugar Creek.

Approximately 20% of basin stream mileage is channelized. While the Fox River itself is virtually unaltered, channelized reaches comprise 49% of Little Fox River, 41% of Sugar Creek, and 28% of Honey Creek.

Sedimentation is the only significant form of water pollution in the basin, but it threatens the integrity of the entire ecosystem. In 1984, the watershed was 63% cropland, 16% grassland, and 20% timber. The USDA Soil Conservation Service estimated that annual sediment delivery to the Fox and Wyaconda rivers averaged 3 tons per acre from the 483,780 acres which comprise the combined watersheds; this ranked ninth among 45 Missouri subbasins in rate of sediment delivery to stream channels. This sediment load equates to dumping 100,000 large truck loads of earth fill into these streams annually.

We have documented a reduction in Fox River base flow between the periods 1922-1952 and 1953-1980. Hydrological problems are most probably tied to land use practices which have diminished the moisture retention capacity of basin soils. These net adverse effects have been measurable despite a 5.8% increase in basin timber between 1939 and 1984, indicating that type of vegetative cover alone may not have as significant an effect on basin hydrology as the manner in which cover types are managed. From the 1950s through the 1980s, an increasing dependency on heavy machinery and chemical methods for producing crops has compacted the soil and reduced its organic matter content, thereby reducing its capacity to retain moisture.

The largely agricultural population of Clark County is generally unaware of the adverse effects that channelization, levee construction, riparian corridor clearing, and high-impact agriculture have had on basin streams.

In 1987, a Department of Conservation survey added 16 species to the annotated list of fishes known to the Missouri portion of the Fox River basin, which now number 52. Most fishes in our 1987 samples were widespread, tolerant species.

A statewide telephone survey revealed that 67% of Fox River anglers fished primarily for channel catfish. Our 1987 fish population surveys revealed that most channel catfish (84%) were small (<11 inches). Only 18% of 11-inch-and-larger channel catfish were of "quality" size (16 inches). We suspect that there is insufficient depth and current during much of the year to provide habitat suitable for quality-size channel catfish; they may migrate downstream to the Mississippi River prior to the onset of low-flow conditions. We also feel that migration of adult flathead catfish may significantly influence their density at any point in time. Out 1987 survey yielded only 28 flathead catfish, most small; yet several anglers have reported catching big flatheads during high-flow periods in late spring and early summer. Before we can manage catfish populations in the Fox River basin, we must know whether exploitable stocks are stable or transient. Also, we must learn which methods and times for sampling will provide meaningful information.

Relative to other stream basins in northeastern Missouri, Fox River receives very little attention by anglers or floaters. Boating and canoeing on all tributaries and most of Fox

River is hampered by shallow water, log jams, and low base flow. Even though recreational use of basin streams seems low relative to the availability of public stream frontage, there are some unique habitats which might be enjoyed if they were accessible.

Out 25-year strategic plan for the Fox River basin contains goals for the Fisheries Management Section of the Missouri Department of Conservation to improve aquatic habitat, maintain fish species richness and increase density of large sport fish, and increase appreciation for and accessibility to basin streams.

In order to improve aquatic habitat, we should do our best to prevent additional channelization projects, implement stream corridor management plans on public areas, convince basin farmers to engage in low-input sustainable agriculture and use acceptable methods for managing their riparian corridors, and cooperate with others in maintaining base flow at or above current levels.

In order to approach our goal for fish community integrity, we propose to maintain at least 50 native species of fish and to achieve "balanced" populations of channel and flathead catfish in basin streams. An important first step will be to learn enough about catfish migration patterns and catfish population survey methods to define seasonal parameters which may indicate whether "balance" exists in prairie streams.

In order to increase appreciation for and accessibility to basin streams, we should provide public access to the most unique and scenic reaches of basin streams and ensure that all potential stream anglers and floaters have access to information about recreational opportunities at these areas. To achieve this, we propose to amend the Department of Conservation's Stream Areas Acquisition Plan, develop a brochure, and generally facilitate public awareness and involvement with basin streams.

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